(2) Level 2 requires:

(i) Knowledge of general principles, and limited practical application.

(ii) Development of sufficient manipulative skill to perform basic operations.

(iii) Instruction by lecture, demonstration, discussion, and limited practical application.

(3) Level 3 requires:

(i) Knowledge of general principles, and performance of a high degree of practical application.

(ii) Development of sufficient manipulative skills to simulate return to service.

(iii) Instruction by lecture, demonstration, discussion, and a high degree of practical application.

(c) *Teaching materials and equipment.* The curriculum may be presented utilizing currently accepted educational materials and equipment, including, but not limited to: calculators, computers, and audio-visual equipment.

[Amdt. 147–2, 35 FR 5534, Apr. 3, 1970, as amended by Amdt. 147–5, 57 FR 28960, June 29, 1992]

APPENDIX B TO PART 147—GENERAL CURRICULUM SUBJECTS

This appendix lists the subjects required in at least 400 hours in general curriculum subjects.

The number in parentheses before each item listed under each subject heading indicates the level of proficiency at which that item must be taught.

Teaching level	
	A. BASIC ELECTRICITY
(2)	1. Calculate and measure capacitance and inductance.
(2)	2. Calculate and measure electrical power.
(3)	3. Measure voltage, current, resistance, and continuity.
(3)	4. Determine the relationship of voltage, current, and resistance in electrical circuits.
(3)	5. Read and interpret aircraft electrical circuit diagrams, including solid state devices and logic functions.
(3)	6. Inspect and service batteries.
	B. AIRCRAFT DRAWINGS
(2)	7. Use aircraft drawings, symbols, and system schematics.
(3)	8. Draw sketches of repairs and alterations.
(3)	9. Use blueprint information.
(3)	10. Use graphs and charts.
	C. WEIGHT AND BALANCE
(2)	11. Weigh aircraft.
(3)	12. Perform complete weight-and-balance check and record data.
	D. FLUID LINES AND FITTINGS
(3)	13. Fabricate and install rigid and flexible fluid lines and fittings.
	E. MATERIALS AND PROCESSES
(1)	14. Identify and select appropriate nondestructive testing methods.
(2)	15. Perform dye penetrant, eddy current, ultrasonic, and magnetic particle inspections.
(1)	16. Perform basic heat-treating processes.
(3)	17. Identify and select aircraft hardware and materials.
(3)	18. Inspect and check welds.
(3)	19. Perform precision measurements.
	F. GROUND OPERATION AND SERVICING
(2)	20. Start, ground operate, move, service, and secure aircraft and identify typical ground operation hazards.
(2)	21. Identify and select fuels.
	G. CLEANING AND CORROSION CONTROL
(3)	22. Identify and select cleaning materials.
(3)	23. Inspect, identify, remove, and treat aircraft corrosion and perform aircraft cleaning.
	H. MATHEMATICS
(3)	24. Extract roots and raise numbers to a given power.
(3)	25. Determine areas and volumes of various geometrical shapes.
(3)	26. Solve ratio, proportion, and percentage problems.
(3)	27. Perform algebraic operations involving addition, subtraction, multiplication, and division of positive and negative numbers.
	I. MAINTENANCE FORMS AND RECORDS
(3)	28. Write descriptions of work performed including aircraft discrepancies and corrective actions using typical aircraft maintenance records.
(3)	29. Complete required maintenance forms, records, and inspection reports.
	J. BASIC PHYSICS
(2)	30. Use and understand the principles of simple machines; sound, fluid, and heat dynamics; basic aerodynamics; aircraft structures; and theory of flight.
	K. MAINTENANCE PUBLICATIONS
(3)	31. Demonstrate ability to read, comprehend, and apply information contained in FAA and manufacturers' aircraft maintenance specifications, data sheets, manuals, publications, and related Federal Aviation Regulations, Airworthiness Directives, and Advisory material.
(3)	32. Read technical data.
	L. MECHANIC PRIVILEGES AND LIMITATIONS
(3)	33. Exercise mechanic privileges within the limitations prescribed by part 65 of this chapter.

[Amdt. 147–2, 35 FR 5534, Apr. 3, 1970, as amended by Amdt. 147–5, 57 FR 28960, June 29, 1992]

APPENDIX C TO PART 147—AIRFRAME CURRICULUM SUBJECTS

This appendix lists the subjects required in at least 750 hours of each airframe curriculum, in addition to at least 400 hours in general curriculum subjects.

The number in parentheses before each item listed under each subject heading indicates the level of proficiency at which that item must be taught.

I. AIRFRAME STRUCTURES

Teaching level	
	A. WOOD STRUCTURES
(1)	1. Service and repair wood structures.
(1)	2. Identify wood defects.
(1)	3. Inspect wood structures.
	B. AIRCRAFT COVERING
(1)	4. Select and apply fabric and fiberglass covering materials.
(1)	5. Inspect, test, and repair fabric and fiberglass.
	C. AIRCRAFT FINISHES
(1)	6. Apply trim, letters, and touchup paint.
(2)	7. Identify and select aircraft finishing materials.
(2)	8. Apply finishing materials.
(2)	9. Inspect finishes and identify defects.
	D. SHEET METAL AND NON-METALLIC STRUCTURES
(2)	10. Select, install, and remove special fasteners for metallic, bonded, and composite structures.
(2)	11. Inspect bonded structures.
(2)	12. Inspect, test, and repair fiberglass, plastics, honeycomb, composite, and laminated primary and secondary structures.
(2)	13. Inspect, check, service, and repair windows, doors, and interior furnishings.
(3)	14. Inspect and repair sheet-metal structures.
(3)	15. Install conventional rivets.
(3)	16. Form, lay out, and bend sheet metal.
	E. WELDING
(1)	17. Weld magnesium and titanium.
(1)	18. Solder stainless steel.
(1)	19. Fabricate tubular structures.
(2)	20. Solder, braze, gas-weld, and arc-weld steel.
(1)	21. Weld aluminum and stainless steel.
	F. ASSEMBLY AND RIGGING
(1)	22. Rig rotary-wing aircraft.
(2)	23. Rig fixed-wing aircraft.
(2)	24. Check alignment of structures.
(3)	25. Assemble aircraft components, including flight control surfaces.
(3)	26. Balance, rig, and inspect movable primary and secondary flight control surfaces.
(3)	27. Jack aircraft.
	G. AIRFRAME INSPECTION
(3)	28. Perform airframe conformity and airworthiness inspections.

II. AIRFRAME SYSTEMS AND COMPONENTS

Teaching level	
	A. AIRCRAFT LANDING GEAR SYSTEMS
(3)	29. Inspect, check, service, and repair landing gear, retraction systems, shock struts, brakes, wheels, tires, and steering systems.
	B. HYDRAULIC AND PNEUMATIC POWER SYSTEMS
(2)	30. Repair hydraulic and pneumatic power systems components.
(3)	31. Identify and select hydraulic fluids.
(3)	32. Inspect, check, service, troubleshoot, and repair hydraulic and pneumatic power systems.
	C. CABIN ATMOSPHERE CONTROL SYSTEMS
(1)	33. Inspect, check, troubleshoot, service, and repair heating, cooling, air conditioning, pressurization systems, and air cycle machines.
(1)	34. Inspect, check, troubleshoot, service, and repair heating, cooling, air-conditioning, and pressurization systems.
(2)	35. Inspect, check, troubleshoot, service and repair oxygen systems.
	D. AIRCRAFT INSTRUMENT SYSTEMS
(1)	36. Inspect, check, service, troubleshoot, and repair electronic flight instrument systems and both mechanical and electrical heading, speed, altitude, temperature, pressure, and position indicating systems to include the use of built-in test equipment.
(2)	37. Install instruments and perform a static pressure system leak test.
	E. COMMUNICATION AND NAVIGATION SYSTEMS
(1)	38. Inspect, check, and troubleshoot autopilot, servos and approach coupling systems.
(1)	39. Inspect, check, and service aircraft electronic communication and navigation systems, including VHF passenger address interphones and static discharge devices, aircraft VOR, ILS, LORAN, Radar beacon transponders, flight management computers, and GPWS.
(2)	40. Inspect and repair antenna and electronic equipment installations.
	F. AIRCRAFT FUEL SYSTEMS
(1)	41. Check and service fuel dump systems.
(1)	42. Perform fuel management transfer, and defueling.
(1)	43. Inspect, check, and repair pressure fueling systems.
(2)	44. Repair aircraft fuel system components.
(2)	45. Inspect and repair fluid quantity indicating systems.
(2)	46. Troubleshoot, service, and repair fluid pressure and temperature warning systems.
(3)	47. Inspect, check, service, troubleshoot, and repair aircraft fuel systems.
	G. AIRCRAFT ELECTRICAL SYSTEMS
(2)	48. Repair and inspect aircraft electrical system components; crimp and splice wiring to manufacturers' specifications; and repair pins and sockets of aircraft connectors.
(3)	49. Install, check, and service airframe electrical wiring, controls, switches, indicators, and protective devices.
(3)	50.a. Inspect, check, troubleshoot, service, and repair alternating and direct current electrical systems.
(1)	50.b. Inspect, check, and troubleshoot constant speed and integrated speed drive generators.
	H. POSITION AND WARNING SYSTEMS
(2)	51. Inspect, check, and service speed and configuration warning systems, electrical brake controls, and anti-skid systems.
(3)	52. Inspect, check, troubleshoot, and service landing gear position indicating and warning systems.

II. AIRFRAME SYSTEMS AND COMPONENTS—Continued

Teaching level	
	I. ICE AND RAIN CONTROL SYSTEMS
(2)	53. Inspect, check, troubleshoot, service, and repair airframe ice and rain control systems.
	J. FIRE PROTECTION SYSTEMS
(1)	54. Inspect, check, and service smoke and carbon monoxide detection systems.
(3)	55. Inspect, check, service, troubleshoot, and repair aircraft fire detection and extinguishing systems.

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APPENDIX D TO PART 147—POWERPLANT CURRICULUM SUBJECTS

This appendix lists the subjects required in at least 750 hours of each powerplant curriculum, in addition to at least 400 hours in general curriculum subjects.

The number in parentheses before each item listed under each subject heading indicates the level of proficiency at which that item must be taught.

I. POWERPLANT THEORY AND MAINTENANCE

Teaching level	
	A. RECIPROCATING ENGINES
(1)	1. Inspect and repair a radial engine.
(2)	2. Overhaul reciprocating engine.
(3)	3. Inspect, check, service, and repair reciprocating engines and engine installations.
(3)	4. Install, troubleshoot, and remove reciprocating engines.
	B. TURBINE ENGINES
(2)	5. Overhaul turbine engine.
(3)	6. Inspect, check, service, and repair turbine engines and turbine engine installations.
(3)	7. Install, troubleshoot, and remove turbine engines.
	C. ENGINE INSPECTION
(3)	8. Perform powerplant conformity and air worthiness inspections.

II. POWERPLANT SYSTEMS AND COMPONENTS

Teaching level	
	A. ENGINE INSTRUMENT SYSTEMS
(2)	9. Troubleshoot, service, and repair electrical and mechanical fluid rate-of-flow indicating systems.
(3)	10. Inspect, check, service, troubleshoot, and repair electrical and mechanical engine temperature, pressure, and r.p.m. indicating systems.
	B. ENGINE FIRE PROTECTION SYSTEMS
(3)	11. Inspect, check, service, troubleshoot, and repair engine fire detection and extinguishing systems.

II. POWERPLANT SYSTEMS AND COMPONENTS—Continued

Teaching level	
	C. ENGINE ELECTRICAL SYSTEMS
(2)	12. Repair engine electrical system components.
(3)	13. Install, check, and service engine electrical wiring, controls, switches, indicators, and protective devices.
	D. LUBRICATION SYSTEMS
(2)	14. Identify and select lubricants.
(2)	15. Repair engine lubrication system components.
(3)	16. Inspect, check, service, troubleshoot, and repair engine lubrication systems.
	E. IGNITION AND STARTING SYSTEMS
(2)	17. Overhaul magneto and ignition harness.
(2)	18. Inspect, service, troubleshoot, and repair reciprocating and turbine engine ignition systems and components.
(3)	19.a. Inspect, service, troubleshoot, and repair turbine engine electrical starting systems.
(1)	19.b. Inspect, service, and troubleshoot turbine engine pneumatic starting systems.
	F. FUEL METERING SYSTEMS
(1)	20. Troubleshoot and adjust turbine engine fuel metering systems and electronic engine fuel controls.
(2)	21. Overhaul carburetor.
(2)	22. Repair engine fuel metering system components.
(3)	23. Inspect, check, service, troubleshoot, and repair reciprocating and turbine engine fuel metering systems.
	G. ENGINE FUEL SYSTEMS
(2)	24. Repair engine fuel system components.
(3)	25. Inspect, check, service, troubleshoot, and repair engine fuel systems.
	H. INDUCTION AND ENGINE AIRFLOW SYSTEMS
(2)	26. Inspect, check, troubleshoot, service, and repair engine ice and rain control systems.
(1)	27. Inspect, check, service, troubleshoot and repair heat exchangers, superchargers, and turbine engine airflow and temperature control systems.
(3)	28. Inspect, check, service, and repair carburetor air intake and induction manifolds.
	I. ENGINE COOLING SYSTEMS
(2)	29. Repair engine cooling system components.
(3)	30. Inspect, check, troubleshoot, service, and repair engine cooling systems.
	J. ENGINE EXHAUST AND REVERSER SYSTEMS
(2)	31. Repair engine exhaust system components.
(3)	32.a. Inspect, check, troubleshoot, service, and repair engine exhaust systems.
(1)	32.b. Troubleshoot and repair engine thrust reverser systems and related components.
	K. PROPELLERS
(1)	33. Inspect, check, service, and repair propeller synchronizing and ice control systems.
(2)	34. Identify and select propeller lubricants.
(1)	35. Balance propellers.
(2)	36. Repair propeller control system components.
(3)	37. Inspect, check, service, and repair fixed-pitch, constant-speed, and feathering propellers, and propeller governing systems.
(3)	38. Install, troubleshoot, and remove propellers.
(3)	39. Repair aluminum alloy propeller blades.